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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MEINECKE DIAZ, SUSANNA M

ART UNIT	PAPER NUMBER
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3623

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/600,779

Applicant(s)

YANAGISAWA ET AL.

Examiner

Susanna M. Diaz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 46-51, 67, 69-73 and 94-104 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 46-51, 67, 69-73 and 94-104 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/18/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 11, 2005 has been entered.

Claims 46, 50, 67, 70, and 72 have been amended.

Claims 101-104 have been added.

Claim 93 has been cancelled.

Claims 46-51, 67, 69-73, and 94-104 are pending.

Response to Arguments

2. Applicant's arguments filed January 11, 2005 have been fully considered but they are not persuasive.

Regarding claim 71, Applicants submits that the recited "altering the amount of the charge settlement based on a duration of time until an arrival in the processing area" means that the charge settlement "can be determined at a time prior to arrival, based, for example, on the charge calculation conditions disclosed in paragraphs 301 to 307 on pages 51-53 of the specification" (page 8 of Applicants' response). The most relevant excerpt seems to be found in paragraph 301, which states that "it is possible to increase

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the charge amount in accordance with the proximity to the city center, or to alter the charge amount in accordance with the number of times of use, or to alter the charge amount in accordance with the level of congestion, or to alter the charge amount in accordance with the length of use.” There is still no mention of the charge settlement being based on a duration of time until an arrival in a processing area *per se*. Even by charging in accordance with the proximity to the city center, it is not clear that the city center is a processing area *per se*. Therefore, the scope of this limitation remains unclear.

In reference to claims 46, 50, 67, and 70 (discussed on pages 8-9 of Applicants’ response), Applicants’ arguments are addressed in the revised art rejection presented below.

Applicants broadly challenge Examiner’s use of Official Notice on pages 9-10 of the response. Applicants address the limitations of claim 72 as a whole; however, Examiner did not take Official Notice of all of the features recited in claim 72. Therefore, it is not clear which statements Applicants are challenging. Examiner made the following statements of Official Notice in the art rejection:

(1) Official Notice is taken that it is old and well-known in the art to pay tolls though the use of an IC card on which balance information is stored. IC card payments assist in quickly settling payments from one party to another.

(2) Official Notice is taken that it is old and well-known in the art that many cities experience the greatest traffic congestion at a general central area of the respective city

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(e.g., the downtown area) and traffic becomes proportionately less congested as one distances him/herself from the central/downtown area.

Since claim 96 is currently being indicated as allowable, the second Official Notice statement is now moot. Regarding the first Official Notice statement, Applicants do not clearly challenge the assertion nor do they provide any supporting arguments for their disagreement with the Examiner's rationale. Therefore, it is not understood with which facts Applicants are specifically in disagreement. If Applicants are truly "challenging the Official Notice," then Applicants assert that the following statements are **not** true:

(1) Official Notice is taken that it is old and well-known in the art to pay tolls though the use of an IC card on which balance information is stored. IC card payments assist in quickly settling payments from one party to another.

Please clarify which particular asserted facts or rationale Applicants contend. At present, the Examiner provides the following references in support of the Official Notice:

- (1) Maeda et al. (U.S. Patent No. 5,926,546) -- see the abstract;
Isobe et al. (JP 9-319906) -- see the abstract.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claim 71 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 71, it is not understood what is meant by "altering the amount of the charge settlement based on a duration of time until an arrival in the processing area" (lines 3-4). First, how can one determine a duration of time until an arrival in a processing area, especially in light of varying traffic conditions and other delaying factors? Second, how can charge settlement be altered before it has been calculated? According to independent claim 70, charge settlement is not performed until the processing area is reached by the moving body.

Appropriate correction and/or clarification is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 46, 47, 49-51, 94, 97, and 101-104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Westerlage et al. (U.S. Patent No. 5,694,322) in view of Hassett (U.S. Patent No. 6,653,946).

Westerlage discloses a charge processing device (*a device is merely a mechanism designed to serve a special purpose and does not necessarily imply that all*

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device components are physically contained in a single unit at a single location; it is synonymous with a system) comprising:

[Claim 46] detecting means for detecting position information indicating a position where a moving body is located on the basis of a received signal from a satellite (col. 3, lines 38-62; col. 4, lines 7-29);

matching means for matching the position information with predetermined map information (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

setting means for, based on the map information, setting an area where a charge is applied which area corresponds to a predetermined area in the map information (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

deciding means for, based on a result of a matching by the matching means, deciding an entry state indicating whether or not the moving body has at least entered into the area where a charge is applied (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60); and

generating means for generating, based on a result of a deciding by the deciding means, charge information for the moving body, by using the received toll data (col. 9, lines 1-14; col. 10, lines 4-7; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

[Claim 49] wherein the generating means is further provided with storage means in which predetermined toll data corresponding to the entry state is stored in advance, and

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the generating means generates the charge information using the toll data in the storage means (col. 11, lines 29-32 -- Toll information is "normally produced by another computer or person and loaded into mobile unit 22 for use by processor 100," thereby implying that the toll data input into the mobile unit is predetermined).

As per claims 46, 101, and 102, Westerlage's invention applies to various types of vehicles (col. 3, lines 8-13; col. 8, lines 56-59). Toll information is "normally produced by another computer or person and loaded into mobile unit 22 for use by processor 100" (col. 11, lines 29-32), thereby implying that the toll data input into the mobile unit is at some point received from a remote location, especially since it is not likely that those setting tax guidelines in each state or appointed representatives would personally sit in each vehicle and upload tax data to the respective vehicle's mobile unit. Westerlage does not expressly teach receiving means for receiving toll data from a location remote to the moving body including charge data, for each of a plurality of different moving body types, relating to the area where a charge is applied. Hassett makes up for these deficiencies in his teachings related to an electronic vehicle toll collection system. Each vehicle contains an IVC (in-vehicle component) that receives toll schedule data (from a ground toll station that detects the vehicle's location in its vicinity) for the particular class, including size, of vehicle wirelessly soon after the vehicle enters or shortly before the vehicle exits a toll area (col. 12, line 35 through col. 13, line 12; col. 14, lines 43-48; col. 16, lines 22-28; col. 27, lines 39-60). Westerlage requires that toll information for each region be separately loaded into its mobile unit.

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Hassett specifically points out that his invention serves to combat the existing problem of drivers having to carry multiple cards corresponding to each separate toll authority account that the drivers use when passing through various toll zones (col. 2, lines 19-23). Hassett addresses a potential problem of Westerlage in that each map and associated grid need to be loaded ahead of time into the vehicle's mobile unit, presumably for each toll region (col. 11, lines 29-32). Furthermore, Hassett more comprehensively expands upon Westerlage's ability to charge various types of vehicles in accordance with typical toll practices (e.g., charging based on vehicle size, see col. 27, lines 39-60). Therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify Westerlage to incorporate receiving means for receiving toll data from a location remote to the moving body including charge data, for each of a plurality of different moving body types, relating to the area where a charge is applied, wherein the receiving means for receiving toll data receives said toll data at a time when the moving body is proximate to the area where a charge is applied and said ground station is in charge of a geographical area (as taught by Hassett) in order to simplify Westerlage's toll system by eliminating the need to load ahead of time each map and associated grid into the vehicle's mobile unit for each toll region while allowing Westerlage's toll system to more effectively charge tolls in accordance with typical toll practices, including the ability to charge various types of vehicles based on vehicle size, thereby making Westerlage's system more adaptable to a wider range of toll areas.

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[Claims 47, 94, 97] Westerlage's charge processing device comprises location information detecting means for detecting, based on the position information, location information indicating the time the moving body is located in the area in which a charge is applied, wherein the deciding means decides, based on the result of the matching by the matching means and a result of a detection by the location information detecting means, the entry state including a location state of the moving body within the area in which a charge is applied (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-65); however, Westerlage does not expressly teach that the date the moving body is located in the area and charge data for a plurality of time zones are indicated. Westerlage's invention logs the "specifics of each trip" in order to assess vehicles taxes (col. 7, lines 38-48). In order to properly assess an elapsed time period, especially one that extends from one day to another, it is essential that one record the dates and times (along with time zones, especially in areas which traverse two time zones) corresponding to an elapsed time period. For example, if a truck travels through Texas making extensive deliveries from 3 p.m. to 3 p.m., such a measurement of time has no meaning until corresponding dates are assigned. In other words, if the truck began its deliveries at 3 p.m. on Monday, December 8th, it is important to know whether or not the truck completed all deliveries in the tax area(s) at 3 p.m. on Tuesday, December 9th, Wednesday, December 10th, etc. Furthermore, when traveling across multiple time zones, one must know in which time zone to context recorded times in order to assess an accurate duration of time. Therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the

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time of Applicant's invention to adapt Westerlage's invention to not only indicate time and time zone information corresponding to a moving body's locations, but also corresponding date information as well in order to assist in more accurately assessing an elapsed time period, especially one that extends from one day to another or is measured as a vehicle travels from one time zone to another.

Westerlage discloses a charge processing device (*a device is merely a mechanism designed to serve a special purpose and does not necessarily imply that all device components are physically contained in a single unit at a single location; it is synonymous with a system*) comprising:

[Claim 50] host position detecting means for detecting a position of a host moving body on the basis of a received signal from a satellite (col. 3, lines 38-62; col. 4, lines 7-29);

charge processing means for performing charge processing relating to the area in which a charge is applied, at a predetermined period and based on a result thereof (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60), wherein

the host position detecting means, the transceiving means, and the charge processing means are able to be mounted on a moving body (col. 4, lines 18-23, 57-59; col. 10, lines 4-7; col. 11, lines 26-50).

As per claims 50, 103, and 104, Westerlage's invention applies to various types of vehicles (col. 3, lines 8-13; col. 8, lines 56-59). Toll information is "normally produced by another computer or person and loaded into mobile unit 22 for use by processor 100" (col. 11, lines 29-32), thereby implying that the toll data input into the mobile unit is at some point received from a remote location, especially since it is not likely that those setting tax guidelines in each state or appointed representatives would personally sit in each vehicle and upload tax data to the respective vehicle's mobile unit. Westerlage does not expressly teach receiving means for receiving toll data from a location remote to the moving body including charge data, for each of a plurality of different moving body types, relating to the area where a charge is applied. Hassett makes up for these deficiencies in his teachings related to an electronic vehicle toll collection system. Each vehicle contains an IVC (in-vehicle component) that receives toll schedule data (from a ground toll station that detects the vehicle's location in its vicinity) for the particular class, including size, of vehicle wirelessly soon after the vehicle enters or shortly before the vehicle exits a toll area (col. 12, line 35 through col. 13, line 12; col. 14, lines 43-48; col. 16, lines 22-28; col. 27, lines 39-60). Westerlage requires that toll information for each region be separately loaded into its mobile unit. Hassett specifically points out that his invention serves to combat the existing problem of drivers having to carry multiple cards corresponding to each separate toll authority account that the drivers use when passing through various toll zones (col. 2, lines 19-23). Hassett addresses a potential problem of Westerlage in that each map and associated grid need to be loaded ahead of time into the vehicle's mobile unit,

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presumably for each toll region (col. 11, lines 29-32). Furthermore, Hassett more comprehensively expands upon Westerlage's ability to charge various types of vehicles in accordance with typical toll practices (e.g., charging based on vehicle size, see col. 27, lines 39-60). Therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify Westerlage to incorporate transceiving means for, by wireless communication, transmitting position information of the host moving body to a ground station, and for receiving charge toll data from a location remote to the moving body including charge data, for each of a plurality of different moving body types, wherein the receiving means for receiving toll data receives said toll data at a time when the moving body is proximate to the area where a charge is applied and said ground station is in charge of a geographical area (as taught by Hassett), relating to an area where a charge is applied which area is set based on predetermined map information in correspondence with a predetermined area in the map information (as taught by Westerlage), and charging thereof in order to simplify Westerlage's toll system by eliminating the need to load ahead of time each map and associated grid into the vehicle's mobile unit for each toll region while allowing Westerlage's toll system to more effectively charge tolls in accordance with typical toll practices, including the ability to charge various types of vehicles based on vehicle size, thereby making Westerlage's system more adaptable to a wider range of toll areas.

[Claim 51] Westerlage's invention discloses the settlement of tax payments "by physically printing and mailing a check, or through any suitable electronic funds transfer

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technology, such as the electronic data interface (EDI)" (col. 7, lines 6-8), yet Westerlage does not expressly teach that the charge processing means performs the charge processing using an IC card on which balance information is stored. However, Official Notice is taken that it is old and well-known in the art to pay tolls through the use of an IC card on which balance information is stored. IC card payments assist in quickly settling payments from one party to another. Therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the use of an IC card on which balance information is stored to make payment as part of Westerlage's invention in order to promote the relatively quick settling of tax payments.

7. Claims 48, 67, 69-71, 95, and 98-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Westerlage et al. (U.S. Patent No. 5,694,322) in view of Hassett (U.S. Patent No. 6,653,946), as applied to claims 46, 50, 67, and 70 above, and further in view of Widl (U.S. Patent No. 5,721,678).

Westerlage discloses a charge processing device (*a device is merely a mechanism designed to serve a special purpose and does not necessarily imply that all device components are physically contained in a single unit at a single location; it is synonymous with a system*) comprising:

[Claim 67] detecting means for detecting position information indicating a position where a moving body is located on the basis of a received signal from a satellite (col. 3, lines 38-62; col. 4, lines 7-29);

matching means for matching predetermined map information and the position information (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

setting means for, based on the map information, setting an area where a charge is applied which area corresponds to a predetermined area in the map information (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

deciding means for, based on a result of a matching by the matching means, deciding an entry state indicating whether or not the moving body has at least entered into the area where a charge is applied (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60); and

making means for, based on a result of a decision by the deciding means, generating charge information for the moving body in the area where a charge is applied, as well as making, at a predetermined timing, a charge history of the generated charge information (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

wherein the making means generates charge information for each of a plurality of areas where a charge is applied, and accumulates the generated charge information as charge history (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

[Claim 69] wherein the detecting means detects the position information using satellite signals from satellites (col. 4, lines 7-29).

Regarding claim 67, Westerlage discloses the communication of charge history of the charge information generated by the making means to a ground station which performs a charge settlement function (col. 7, lines 1-8; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60). Westerlage does not expressly teach that the charge history is transmitted by transmitting means to the ground station that is in charge of the area where a charge is applied, which is a geographical area. Hassett makes up for this deficiency in his teachings related to an electronic vehicle toll collection system. Each vehicle contains an IVC (in-vehicle component) that receives toll schedule data (from a ground toll station that detects the vehicle's location in its vicinity) for the particular class, including size, of vehicle wirelessly soon after the vehicle enters or shortly before the vehicle exits a toll area (col. 12, line 35 through col. 13, line 12; col. 14, lines 43-48; col. 16, lines 22-28; col. 27, lines 39-60). Westerlage requires that toll information for each region be separately loaded into its mobile unit. Hassett specifically points out that his invention serves to combat the existing problem of drivers having to carry multiple cards corresponding to each separate toll authority account that the drivers use when passing through various toll zones (col. 2, lines 19-23). Hassett addresses a potential problem of Westerlage in that each map and associated grid need to be loaded ahead of time into the vehicle's mobile unit, presumably for each toll region (col. 11, lines 29-32). Furthermore, Hassett more comprehensively expands upon Westerlage's ability to charge various types of vehicles in accordance with typical toll practices (e.g., charging based on vehicle size, see col. 27, lines 39-60). Therefore, the Examiner asserts that it would have been

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obvious to one of ordinary skill in the art at the time of Applicant's invention to modify Westerlage to incorporate transmitting means for transmitting the charge history of the charge information generated by the making means to a ground station which performs a charge settlement function, and the ground station is in charge of the area where a charge is applied, which is a geographical area in order to simplify Westerlage's toll system by eliminating the need to load ahead of time each map and associated grid into the vehicle's mobile unit for each toll region while allowing Westerlage's toll system to more effectively charge tolls in accordance with typical toll practices, including the ability to charge various types of vehicles based on vehicle size, thereby making Westerlage's system more adaptable to a wider range of toll areas.

As per claims 67 and 99, Westerlage does not expressly teach that the charge history is based on a number of times the moving body enters into the area where a charge is applied and a length of time the moving body is located in the area where the charge is being applied. Westerlage does, however, state that the disclosed invention is amenable to incorporating various tax structures and/or rates (col. 10, lines 24-25). Westerlage's invention is also open to determining a vehicle tax based on "position fixes, the distance measured by odometer **109**, or other information that may be contained within mobile unit **22**" (col. 4, lines 45-49). Widl is also directed toward a road toll system and Widl expressly teaches that the charge history may be based on a number of times the moving body enters into the area where a charge is applied and a length of time the moving body is located in the area where the charge is being applied (col. 4, lines 18-56; col. 5, lines 25-28 -- A vehicle is charged for each entry and exit as

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well as the duration of travel within a toll zone). Westerlage is open to adaptation to each region's desired tax structures and/or rates, while Widl teaches a specific approach to assessing tolls; therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify Westerlage's invention to incorporate a charge history that is based on a number of times the moving body enters into the area where a charge is applied and a length of time the moving body is located in the area where the charge is being applied in order to make Westerlage's invention useful in toll areas where such a toll scheme is desired by the local road usage taxing authority, thereby making Westerlage's invention more versatile and appealing to a wider body of toll areas and corresponding taxing authorities.

Westerlage discloses a charge processing system comprising:

[Claim 70] in-vehicle communication means comprising (col. 10, lines 4-7):

detecting means for detecting position information indicating a position where a moving body is located on the basis of a received signal from a satellite (col. 3, lines 38-62; col. 4, lines 7-29);

matching means for matching predetermined map information and the position information (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

setting means for, based on the map information, setting an area where a charge is applied which area corresponds to a predetermined area in the map information (col.

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9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

deciding means for, based on a result of a matching by the matching means, deciding an entry state indicating whether or not the moving body has at least entered into the area where a charge is applied (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60); and

making means for, based on a result of a decision by the deciding means, generating charge information for the moving body in the area where a charge is applied, as well as making, at a predetermined timing, a charge history of the generated charge information (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

wherein the making means generates charge information for each of a plurality of areas where a charge is applied, and accumulates the generated charge information as charge history (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60).

Regarding claim 70, Westerlage discloses the communication of charge history of the charge information generated by the making means to a ground station in accordance with a charge history request (col. 4, lines 53-64; col. 7, lines 1-8; col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60); however, Westerlage does not expressly teach transmitting means for transmitting the charge history of the charge information generated by the making means to a

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ground station in accordance with an input transmission request and on-road communication means having request means for performing the transmission request and processing means for performing charge settlement processing in a predetermined processing area and based on a transmitted charge history. Hassett makes up for these deficiencies in his teachings related to an electronic vehicle toll collection system. Each vehicle contains an IVC (in-vehicle component) that receives toll schedule data (from a ground toll station that detects the vehicle's location in its vicinity) for the particular class, including size, of vehicle wirelessly soon after the vehicle enters or shortly before the vehicle exits a toll area (col. 12, line 35 through col. 13, line 12; col. 14, lines 43-48; col. 16, lines 22-28; col. 27, lines 39-60). Westerlage requires that toll information for each region be separately loaded into its mobile unit. Hassett specifically points out that his invention serves to combat the existing problem of drivers having to carry multiple cards corresponding to each separate toll authority account that the drivers use when passing through various toll zones (col. 2, lines 19-23). Hassett addresses a potential problem of Westerlage in that each map and associated grid need to be loaded ahead of time into the vehicle's mobile unit, presumably for each toll region (col. 11, lines 29-32). Therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify Westerlage to incorporate transmitting means for transmitting the charge history of the charge information generated by the making means to a ground station in accordance with an input transmission request and on-road communication means having request means for performing the transmission request and processing means for performing

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charge settlement processing in a predetermined processing area and based on a transmitted charge history in order to simplify Westerlage's toll system by eliminating the need to load ahead of time each map and associated grid into the vehicle's mobile unit for each toll region.

As per claims 70 and 100, Westerlage does not expressly teach that the charge history is based on a number of times the moving body enters into the area where a charge is applied and a length of time the moving body is located in the area where the charge is being applied. Westerlage does, however, state that the disclosed invention is amenable to incorporating various tax structures and/or rates (col. 10, lines 24-25). Westerlage's invention is also open to determining a vehicle tax based on "position fixes, the distance measured by odometer **109**, or other information that may be contained within mobile unit **22**" (col. 4, lines 45-49). Widl is also directed toward a road toll system and Widl expressly teaches that the charge history may be based on a number of times the moving body enters into the area where a charge is applied and a length of time the moving body is located in the area where the charge is being applied (col. 4, lines 18-56; col. 5, lines 25-28 -- A vehicle is charged for each entry and exit as well as the duration of travel within a toll zone). Westerlage is open to adaptation to each region's desired tax structures and/or rates, while Widl teaches a specific approach to assessing tolls; therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify Westerlage's invention to incorporate a charge history that is based on a number of times the moving body enters into the area where a charge is applied and a length of

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time the moving body is located in the area where the charge is being applied in order to make Westerlage's invention useful in toll areas where such a toll scheme is desired by the local road usage taxing authority, thereby making Westerlage's invention more versatile and appealing to a wider body of toll areas and corresponding taxing authorities.

[Claim 71] Westerlage does not expressly teach that the on-line road communication means is further provided with altering means for altering the amount of charge settlement based on a duration of time until an arrival in the processing area. The Examiner asserts that altering the amount of charge settlement based on a duration of time until an arrival in a processing area is effectively equivalent to charging a user for "duration of travel within a toll zone," which is taught by Widl (col. 5, lines 25-28).

Westerlage's invention charges vehicles based on the distance traveled through a tax area. Similarly, Widl discloses a tax based on usage, including in the form of time spent in a tax (i.e., toll) area; therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify Westerlage to also charge vehicles based on a "duration of travel within a toll zone" (taught by Widl: col. 5, lines 25-28) in order to expand Westerlage's customer base by making the modified invention useful in a more comprehensive range of tax/toll applications.

[Claim 48] Westerlage discloses the detection of additional distances traveled, such as in the case of road closures, to allow for adjustments in billing (col. 7, lines 61-64), yet Westerlage does not expressly teach that the generating means decides the entry state including a congestion state caused by moving bodies located in the area in which a charge is applied. However, the Examiner asserts that it is old and well-known in the art to charge tolls based at least in part on a current congestion state in the toll area, as taught by Widl (col. 5, lines 30-34 – “For instance, a sensible variant would be to apply lower rates for individual sections of road or for the entire highway system during off-peak traffic times...in order to reduce traffic at peak periods by a suitable shifting of traffic”). Westerlage discloses the receipt of rush hour and traffic information by the mobile unit (col. 6, lines 22-35); therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant’s invention to adapt Westerlage’s generating means to decide the entry state including a congestion state caused by moving bodies located in the area in which a charge is applied to facilitate the charging of tolls based at least in part on a current congestion state in the toll area in order to encourage vehicles to travel during less congested hours, thereby alleviating traffic conditions (as taught by Widl).

[Claims 95, 98] Westerlage does not expressly teach that the predetermined geographical area where a charge is applied is divided into sub-areas and a charge amount for each sub-area is set such that the closer a sub-area is to the center of the predetermined geographical area, the higher the charge amount becomes. However,

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Widl discloses that "a sensible variant would be to apply lower rates for individual sections of road or for the entire highway system during off-peak traffic times (e.g., based on season or evening hours) in order to reduce traffic at peak periods by a suitable shifting of traffic" (col. 5, lines 30-34). Therefore, as suggested by Widl, alleviating traffic congestion would likely involve increasing vehicle tolls as one nears the most congested area of the city (e.g., the center of the area where charge is applied) "in order to reduce traffic at peak periods by a suitable shifting of traffic" (as suggested by Widl, col. 5, lines 33-34). As discussed above, Westerlage is open to adaptation to each region's desired tax structures and/or rates, while Widl teaches a specific approach to assessing tolls; therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify Westerlage's invention to store the predetermined geographical area where a charge is applied such that the area is divided into sub-areas and a charge amount for each sub-area is set such that the closer a sub-area is to the center of the predetermined geographical area, the higher the charge amount becomes "in order to reduce traffic at peak periods by a suitable shifting of traffic" (as suggested by Widl, col. 5, lines 33-34). Again, this modification makes Westerlage's invention useful in toll areas where such a toll scheme is desired by the local road usage taxing authority, thereby making Westerlage's invention more versatile and appealing to a wider body of toll areas and corresponding taxing authorities.

8. Claims 72 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Westerlage et al. (U.S. Patent No. 5,694,322) in view of Widl (U.S. Patent No. 5,721,678).

Westerlage discloses a charge processing device (*a device is merely a mechanism designed to serve a special purpose and does not necessarily imply that all device components are physically contained in a single unit at a single location; it is synonymous with a system*) comprising:

[Claim 72] detecting means for detecting position information indicating a position where a moving body is located on the basis of a received signal from a satellite (col. 4, lines 7-29);

means for storing a predetermined geographical area in which a charge is applied which geographical area is set based on predetermined map information in correspondence with a predetermined area in the map information (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60); and

generating means for, at a predetermined period, generating charge information for the moving body based on a result of a detection by the detecting means and the area in which a charge is applied stored in the loaded storage means (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60);

[Claim 73] wherein the generating means is provided with a reading means for reading a result of a detection by the detecting means and the area in which a charge is applied stored in the loaded storage means, and generates charge information from the

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read position information and the area in which a charge is applied (col. 9, lines 1-14; col. 10, line 60 through col. 11, line 50; col. 15, lines 4-67; col. 17, lines 4-60).

Regarding claim 72, Westerlage does not expressly teach that the means for storing a predetermined geographical area is a toll card capable of being inserted and removed; however, Widl teaches that different toll cards can be used for different charging rates, e.g., based on the vehicle type (col. 4, lines 57-67). The toll cards are issued "for use of determined regions or routes" and they are used to assess different sets of charges based on the vehicle type and respective rate due in each toll area. Storing region-specific toll data on a toll card is convenient when a vehicle cannot receive an instant download of the applicable toll data in the surrounding area(s). Therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize with Westerlage's invention a toll card capable of being inserted and removed for storing a predetermined geographical area in order to enable local access to region-specific toll data when a vehicle cannot receive an instant download of the applicable toll data in the surrounding area(s). Furthermore, Westerlage does not expressly teach that the predetermined geographical area where a charge is applied is divided into sub-areas and a charge amount for each sub-area is set such that the closer a sub-area is to the center of the predetermined geographical area, the higher the charge amount becomes. However, Widl discloses that "a sensible variant would be to apply lower rates for individual sections of road or for the entire highway system during off-peak traffic times (e.g., based on season or

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evening hours) in order to reduce traffic at peak periods by a suitable shifting of traffic" (col. 5, lines 30-34). Therefore, as suggested by Widl, alleviating traffic congestion would likely involve increasing vehicle tolls as one nears the most congested area of the city (e.g., the center of the area where charge is applied) "in order to reduce traffic at peak periods by a suitable shifting of traffic" (as suggested by Widl, col. 5, lines 33-34). As discussed above, Westerlage is open to adaptation to each region's desired tax structures and/or rates, while Widl teaches a specific approach to assessing tolls; therefore, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify Westerlage's invention to store on a toll card the predetermined geographical area where a charge is applied such that the area is divided into sub-areas and a charge amount for each sub-area is set such that the closer a sub-area is to the center of the predetermined geographical area, the higher the charge amount becomes "in order to reduce traffic at peak periods by a suitable shifting of traffic" (as suggested by Widl, col. 5, lines 33-34). Again, this modification makes Westerlage's invention useful in toll areas where such a toll scheme is desired by the local road usage taxing authority, thereby making Westerlage's invention more versatile and appealing to a wider body of toll areas and corresponding taxing authorities.

Allowable Subject Matter

9. Claim 96 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hassett (U.S. Patent No. 5,751,973) -- Discloses the concept of wirelessly communicating a fee schedule to a vehicle prior to entering a parking area.

Mostrom (U.S. Patent No. 6,252,523) -- Discloses a system for charging fees based on various toll zones.

Yasukawa et al. (JP 10-222708 A) -- Discloses a toll collection system that transmits toll information from road side equipment to a vehicle.

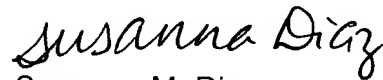
Miyake (JP 10-162185) -- Discloses a toll collection system that transmits data between a vehicle and a roadside machine.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susanna M. Diaz whose telephone number is (571) 272-6733. The examiner can normally be reached on Monday-Friday, 10 am - 6 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Susanna M. Diaz
Primary Examiner
Art Unit 3623

April 18, 2005